

## Examples of Multiplication

$$\begin{array}{r} 2xy(3x + 2x^3y - 5) \\ \hline 6x^2y + 4x^4y^2 - 10xy \end{array}$$

$$(x + 3)(x - 8)$$

$$\begin{array}{r} x^2 - 8x + 3x - 24 \\ \hline x^2 - 5x - 24 \end{array}$$

$$\begin{array}{r} (2x + 4)(2x^2 - 3x^2y + 8) \\ \hline 4x^3 - 6x^3y + 16x + 8x^2 \\ - 12x^2y + 32 \end{array}$$

$$(x + 4)^2$$

$$(x + 4)(x + 4)$$

$$\begin{array}{r} = x^2 + 4x + 4x + 16 \\ = x^2 + 8x + 16 \end{array}$$

## Examples of Factorization

$$\begin{array}{r} 6x^2y + 9x - 15x^3y \\ \hline 3x(2xy + 3 - 5x^2y) \end{array}$$

$$\begin{array}{r} x^2 - 12x + 20 \text{ (first type....basic)} \\ \hline (x - 10)(x - 2) \end{array}$$

$$\begin{array}{r} 3x^2 + 12x - 15 \text{ (second type....factor out the gcf, then basic)} \\ \hline 3(x^2 + 4x - 5) \\ \hline 3(x + 5)(x - 1) \end{array}$$

$$\begin{array}{r} 4x^2 - 3x - 10 \text{ (third type....by decomposition)} \\ \hline 4x^2 - 8x + 5x - 10 \end{array}$$

$$\begin{array}{r} 4x^2 - 8x + 5x - 10 \\ \hline 4x(x - 2) + 5(x - 2) \\ \hline (x - 2)(4x + 5) \end{array}$$

$$\begin{array}{r} 40, 1 \\ 2, 20 \\ 4, 10 \\ \hline 5, 8 \end{array}$$

$$\begin{array}{r} 4x^2 + 16x + 16 \text{ (fourth type....perfect trinomial...)} \\ \hline (2x + 4)^2 \end{array}$$

$$\begin{array}{r} 4x^2 - 16x + 16 \\ \hline (2x - 4)^2 \end{array}$$

$$\begin{array}{r} 25x^2 - 36 \text{ (LAST type....perfect trinomial...)} \\ \hline (5x - 6)(5x + 6) \end{array}$$